

**CLAIMS**

Therefore, having thus described the invention, at least the following is claimed:

1        1.        A telemetry digital communication system comprising:        ✓  
2                    at least one remote data collection device;  
3                    at least one remote telemetry device coupled to at least one remote data  
4 collection device, the remote telemetry device being capable of transmitting and  
5 receiving digital data between the remote data collection device and the central data  
6 acquisition system, wherein the remote telemetry device is assigned a second  
7 identification code which can be changed; and  
8                    a central data acquisition system that is assigned a first identification code,  
9 the first identification code being associated with the remote data collection device  
10 for the central data acquisition system to identify and communicate with the remote  
11 data collection device; and  
12                    an access translation device coupled to the central data acquisition system,  
13 wherein the access translation device receives the first identification code assigned  
14 to the central data acquisition system and the second identification code assigned to  
15 the remote telemetry device, the access translation device being capable of  
16 translating one of (i) the first identification code into the second identification code  
17 and (ii) the second identification code into the first identification code, that enables  
18 the access translation device to facilitate communication between the remote data  
19 collection device and the central data acquisition system even when the second  
20 identification code of the remote telemetry device has changed.

1        2        The system as defined in claim 1, wherein the access translation device is  
2 further capable of tracking a new second identification code received from the  
3 remote telemetry device that enables the access translation device to facilitate  
4 communication between the central data acquisition system and the remote data  
5 collection device.

1        3.        The system as defined in claim 1, further comprising a service provider that  
2        is capable of assigning the second identification code to the remote telemetry  
3        device, the remote telemetry device being capable of sending the second  
4        identification code to the access translation device, which can track the frequently  
5        changing second identification codes sent to the remote telemetry device by the  
6        service provider.

1        4.        The system as defined in claim 1, wherein the first and second identification  
2        codes are each of one of an ID number, phone number, and Internet Protocol (IP)  
3        address.

1        5.        The system as defined in claim 1, wherein the first identification code is  
2        fixed in the central data acquisition system and is not changed even when the  
3        remote telemetry device is assigned with a new second identification code.

1        6.        The system as defined in claim 1, wherein the remote telemetry device is  
2        capable of sending a user datagram protocol and Internet protocol (UDP/IP)  
3        datagram to the access translation device, the UDP/IP datagram containing the  
4        second identification codes, the second identification code including a mobile  
5        identification number and a dynamic IP address, the access translation device being  
6        capable of using the UDP/IP datagram to facilitate tracking the frequently changing  
7        second identification code.

1        7.        The system as defined in claim 1, wherein the remote telemetry device  
2        periodically transmits its current second identification code to the access translation  
3        device to update the access translation device.

1        8.        The system as defined in claim 1, wherein the access translation device  
2        includes a look-up table that associates the first identification code assigned to the  
3        central data acquisition system to the second identification code assigned to the  
4        remote telemetry device.

1       9.       The system as defined in claim 1, wherein the system is capable of  
2       operating as a cellular packet data service, a short messaging service (SMS), and  
3       point-to-point messaging service (SMP-P), the cellular packet data service is one of  
4       1XRTT/CDMA, CDMA2000, EDGE/GSM and GPRS/GSM.

1       10.      The system as defined in claim 1, wherein the access translation device  
2       comprises:  
3              at least one port, the port being capable of receiving and transmitting  
4       identification codes of the central data acquisition system and the remote telemetry  
5       device; and  
6              a processing device being capable of tracking changes in the second  
7       identification code assigned to the remote telemetry device and translating the first  
8       identification code into the second identification code assigned to the remote  
9       telemetry device.

1       11.      The system as defined in claim 10, wherein the port is one of at least one  
2       serial port and at least one Ethernet port, the serial port being capable of receiving  
3       and transmitting identification codes of the central data acquisition system and the  
4       remote telemetry device via a serial port or serial port with AT modem protocol,  
5       and the Ethernet port being capable of receiving and transmitting identification  
6       codes of the central data acquisition system and the remote telemetry device via a  
7       cellular network.

1       12.      The system as defined in claim 3, further comprising a cellular carrier  
2       network facility and mobile switching center (MSC).


1       13.      The system as defined in claim 12, wherein the cellular carrier network  
2       facility and mobile switching center further comprises a cellular carrier e-mail  
3       gateway and short message switching center.

1        14.     The system as defined in claim 1, wherein the access translation device  
2        includes a translation identification code, and the remote telemetry device is  
3        programmed with the translation identification code to facilitate communication  
4        with the access translation device.

1        15.     The system as defined in claim 14, wherein the translation identification  
2        code includes a global fixed IP address.

1        16.     The system as defined in claim 15, further comprising a local area network  
2        (LAN) that includes a LAN identification code, the LAN identification code being  
3        linked to the translation device identification code, the remote telemetry device  
4        being programmed with the LAN identification code to facilitate communication  
5        with the access translation device.

1        17.     The system as defined in claim 16, wherein the LAN identification code  
2        includes a LAN IP address and assigned port numbers.

1        18.     An access translation device comprising:   
2                at least one port, the port being capable of receiving a first identification  
3        code from a central data acquisition system and a second identification code from a  
4        remote telemetry device; and  
5                a processing device being capable of translating one of (i) the first  
6        identification code into the second identification code and (ii) the second  
7        identification code into the first identification code that enables the access  
8        translation device to facilitate communication between the central data acquisition  
9        system that contains the first identification code and a remote data collection device  
10       that is coupled to the remote telemetry device that can have changing second  
11       identification codes.

1        19.     The device as defined in claim 18, wherein the processing device is capable  
2        of tracking the second identification code that the remote telemetry device sends to  
3        the access translation device.

1        20.     The device as defined in claim 18, wherein the first identification code is  
2        fixed in the central data acquisition system and does not change even when the  
3        second identification code of the remote telemetry device changes.

1        21.     The device as defined in claim 18, wherein the first and second  
2        identification codes are one of an identification number (ID), phone number, and  
3        Internet protocol (IP) address.

1        22.     The device as defined in claim 18, wherein the port is one of at least one  
2        serial port and at least one Ethernet port, the serial port being capable of receiving  
3        and transmitting identification codes of the central data acquisition system and the  
4        remote telemetry device via modem protocol, and the Ethernet port being capable  
5        of receiving and transmitting identification codes of the central data acquisition  
6        system and the remote data collection device via a cellular network.

1        23.     The device as defined in claim 22, wherein the Ethernet port is capable of  
2        receiving a user datagram protocol and Internet protocol (UDP/IP) datagram, the  
3        UDP/IP datagram containing the second identification codes, the second  
4        identification code includes a mobile identification number and a dynamic IP  
5        address, the access translation device being capable of using the UDP/IP datagram  
6        to facilitate tracking a changing second identification code.

1        24.     The device as defined in claim 18, further comprising a look-up table that  
2        associates the first identification code assigned to the central data acquisition  
3        system to the second identification code assigned the remote telemetry device.

1        25.     The device as defined in claim 18, wherein the device is capable of  
2        operating as a cellular packet data service, short messaging service (SMS), and a  
3        point-to-point messaging service (SMP-P), wherein the cellular packet data service  
4        is one of 1XRTT/CDMA, EDGE/GSM and GPRS/GSM.

1        26.     The device as defined in claim 18, wherein the access translation device  
2        includes a translation device identification code, the remote telemetry device being  
3        programmed with the translation identification code to facilitate communication  
4        with the access translation device.

1        27.     The device as defined in claim 26, wherein the translation identification  
2        code includes a global fixed IP address.

1        28.     The device as defined in claim 26, wherein the translation identification  
2        code is linked to a LAN identification code of a local area network (LAN) to  
3        facilitate communication between the remote data collection device and the access  
4        translation device.

1        29.     The device as defined in claim 28, wherein the LAN identification code  
2        includes a global LAN IP address and assigned port numbers.

1 30. A method for facilitating communication via an access translation device  
2 between a central data acquisition system that is assigned a first identification code  
3 and a remote telemetry device that is assigned a second identification code, the  
4 method comprising the steps of:

5 the access translation device receiving the first identification code from the  
6 central data acquisition system;

7 the access translation device receiving the second identification code from  
8 the remote telemetry device;

9 associating the first identification code with the second identification code;  
10 and

11 the access translation device translating one of (i) the first identification  
12 code into the second identification code and (ii) the second identification code into  
13 the first identification code that enables communication between the central data  
14 acquisition system and a remote data collection device despite the fact the central  
15 data acquisition system and remote telemetry device have two different  
16 identification codes.

1 31. The method as defined in claim 30, wherein receiving the first identification  
2 code for the central data acquisition system further comprises the use of one of a  
3 modem protocol and a LAN network.

1 32. The method as defined in claim 30, wherein receiving the second  
2 identification code from the remote data collection device further comprising the  
3 use of one of a LAN network, cellular network, and Internet.

1 33. The method as defined in claim 30, wherein receiving the first identification  
2 code and receiving the second identification code comprising receiving one of an  
3 ID number, phone number, and IP address for each code.

1        34.     The method as defined in claim 30, further comprising tracking a new  
2        second identification code assigned to the remote telemetry device, the remote  
3        telemetry device sending the new second identification code to the access  
4        translation device, wherein the tracking of the new second identification code  
5        enables the access translation device to translate one of (i) the first identification  
6        code into the new second identification code and (ii) the second identification code  
7        into the new first identification code, such that the central data acquisition system  
8        can communicate with the remote data collection device despite the fact that the  
9        remote telemetry device has a new second identification code.

1        35.     The method as defined in claim 30, wherein receiving the second  
2        identification code from the remote telemetry device further comprising receiving a  
3        user datagram protocol and internet protocol (UDP/IP) datagram in which the  
4        UDP/IP datagram contains the second identification code to facilitate tracking a  
5        frequently changing second identification code of the remote telemetry device.

1        36.     The method as defined in claim 30, wherein associating the first  
2        identification code with the second identification code in a look-up table.



1 37. A remote telemetry device comprising:  
2 a transceiver that receives a second identification code, the second identification  
3 code being capable of being changed to a new second identification code; and  
4 a processing device coupled to the transceiver, the processing device being  
5 capable of detecting the new second identification code, wherein said transceiver  
6 transmits the new second identification code via a cellular network.

1 38. The device as defined in claim 37, further comprising a memory that stores  
2 one of the second identification code, a translation device identification code, and a  
3 LAN identification code, the second identification code enabling the remote telemetry  
4 device to be identified and to establish communication with an access translation  
5 device, the translation identification code or the LAN identification code enabling the  
6 remote telemetry device to identify the access translation device and to establish  
7 communication with the access translation device.

1 39. The device as defined in claim 37, wherein the transceiver transmits one of the  
2 translation identification code, the LAN identification code and the second  
3 identification code, wherein the translation identification code or the LAN  
4 identification code can be used to identify the access translation device to establish  
5 communication with the remote telemetry device, wherein the second identification  
6 code can be used to identify the remote telemetry device to establish communication  
7 with the access translation device.

1 40. The device as defined in claim 39, wherein the transceiver transmits the  
2 second identification code to the access translation device via a cellular network so  
3 that the access translation device can track the changing second identification code of  
4 the remote telemetry device.

1 41. The device as defined in claim 37, further comprising a connecting terminal  
2 that is coupled to the processing device and a remote data collection device; the  
3 connecting terminal being capable of facilitating communication between the remote  
4 data collection device and the remote telemetry device.

1 42. The device as defined in claim 41, wherein the connecting terminal is one of  
2 an Ethernet, serial, and modem connection.

1 43. The device as defined in claim 42, wherein the processing device is capable of  
2 receiving data from the remote data collection device and instructing the transceiver to  
3 send the data to a central data acquisition system.

1 44. A method for operating a remote telemetry device, the method comprising the  
2 steps of:

3 receiving a second identification code;  
4 determining whether the second identification code is changed;  
5 storing the second identification code; and  
6 transmitting the second identification code via a cellular network.

1 45. The method as defined in claim 44, further comprising communicating a  
2 remote data collection device.

1 46. The method as defined in claim 44, further comprising receiving data from a  
2 remote data collection device and instructing the transceiver to send the data to a  
3 central data acquisition system.